



ALQ-213 EC Integration Roadmap

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GTRI/ELSYS

8th Annual Systems Engineering Conference
October 27, 2005



OVERVIEW



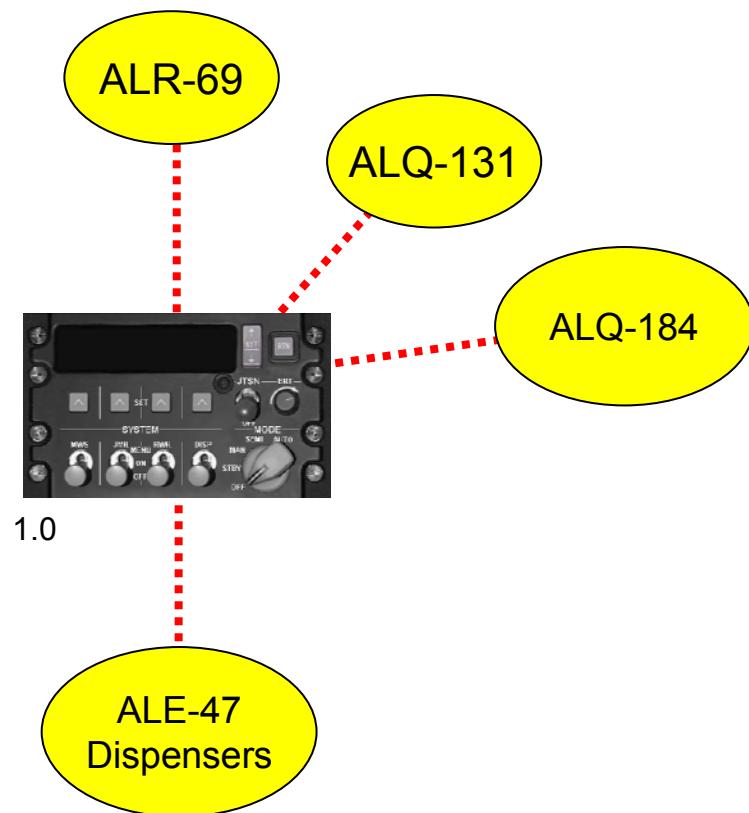
- **ALQ-213 Evolution**
- ALQ-213 Integration and Capabilities
- ALQ-213 1553 Bus Architecture
- ALQ-213 Software Development
- F-16 and A-10 ALQ-213 Integration
- Conclusion



ALQ-213 – 1996



- 1992-1995, ALQ-213 Foreign Comparative Test (FCT) by AATC
- December 1996, Robins Contract Award to Terma Electroniks, Denmark



MIL-STD-1553

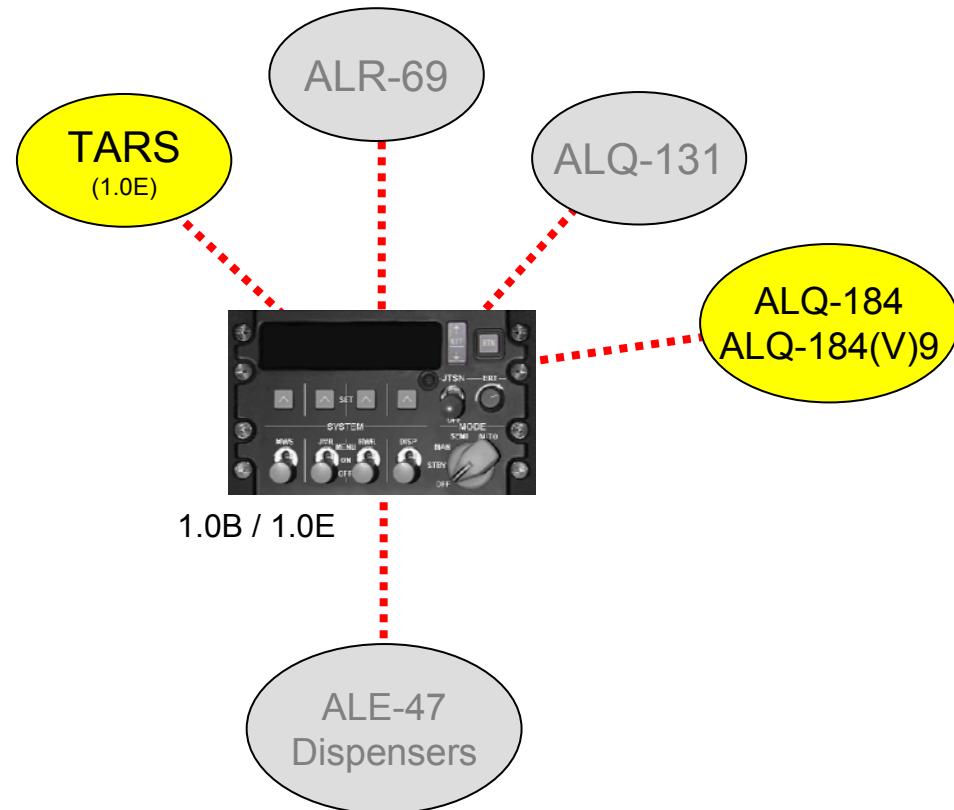
Other (Discrete Signals & Serial Busses)



ALQ-213 – 1998



- 1992-1995, ALQ-213 Foreign Comparative Test (FCT) by AATC
- December 1996, Robins Contract Award to Terma Electroniks, Denmark
- Initial CMSP Software Fielding
 - 1.0B: F-16C+
 - 1.0E: AO/A-10A



MIL-STD-1553

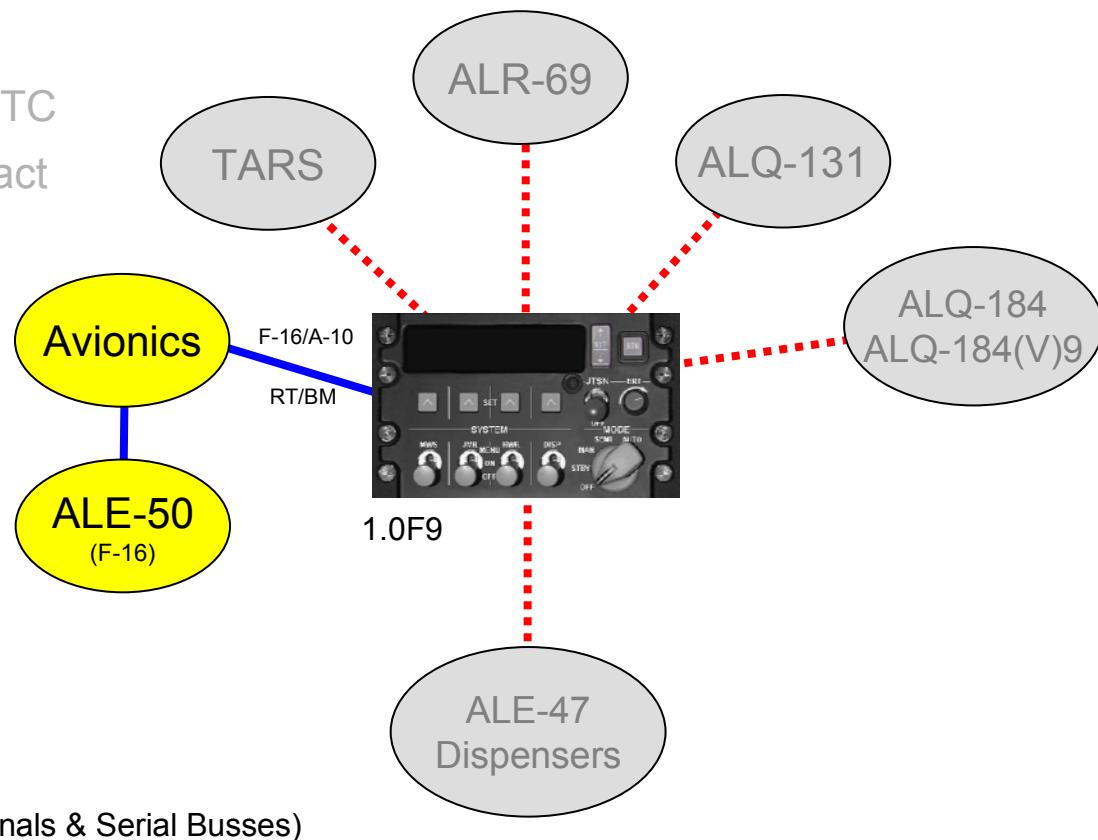
Other (Discrete Signals & Serial Busses)



ALQ-213 – 2001-2003



- 1992-1995, ALQ-213 Foreign Comparative Test (FCT) by AATC
- December 1996, Robins Contract Award to Terma Electroniks, Denmark
- Initial CMSP SW Fielding
- Aircraft Core Integration

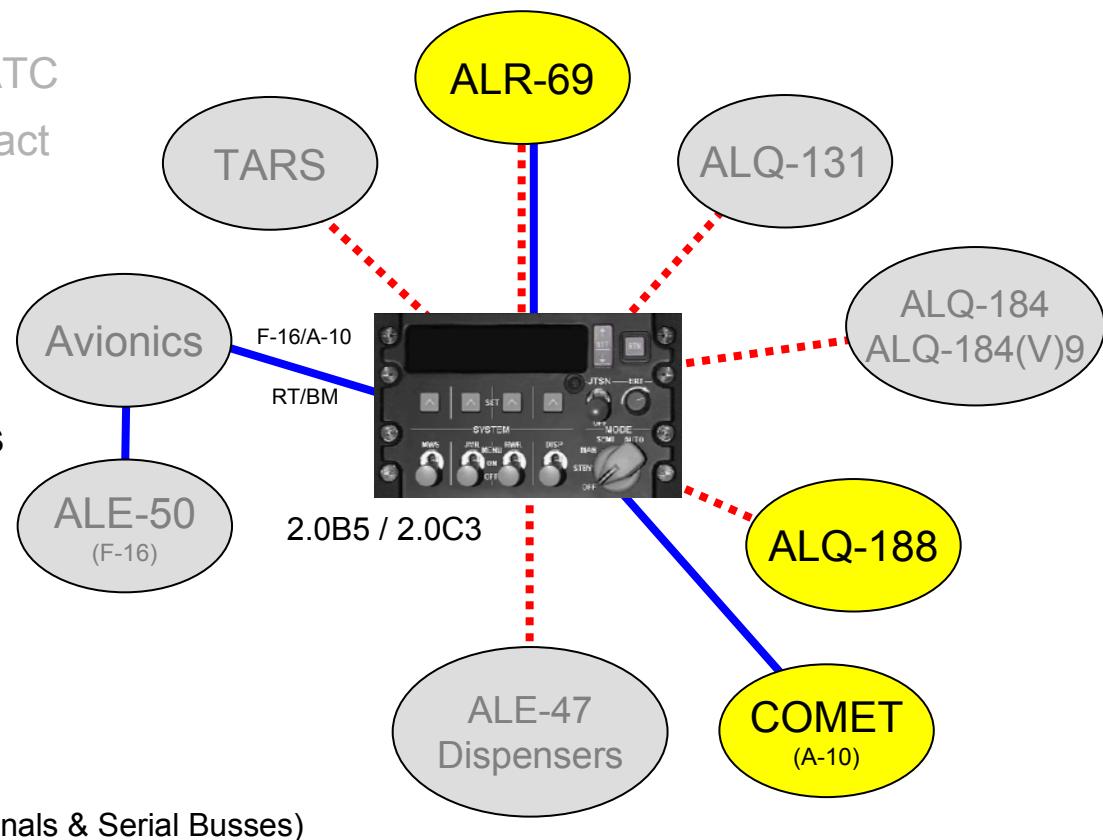




ALQ-213 – 2004-2005



- 1992-1995, ALQ-213 Foreign Comparative Test (FCT) by AATC
- December 1996, Robins Contract Award to Terma Electroniks, Denmark
- Initial CMSP SW Fielding
- Aircraft Core Integration
- 1999 User's Conference Inputs



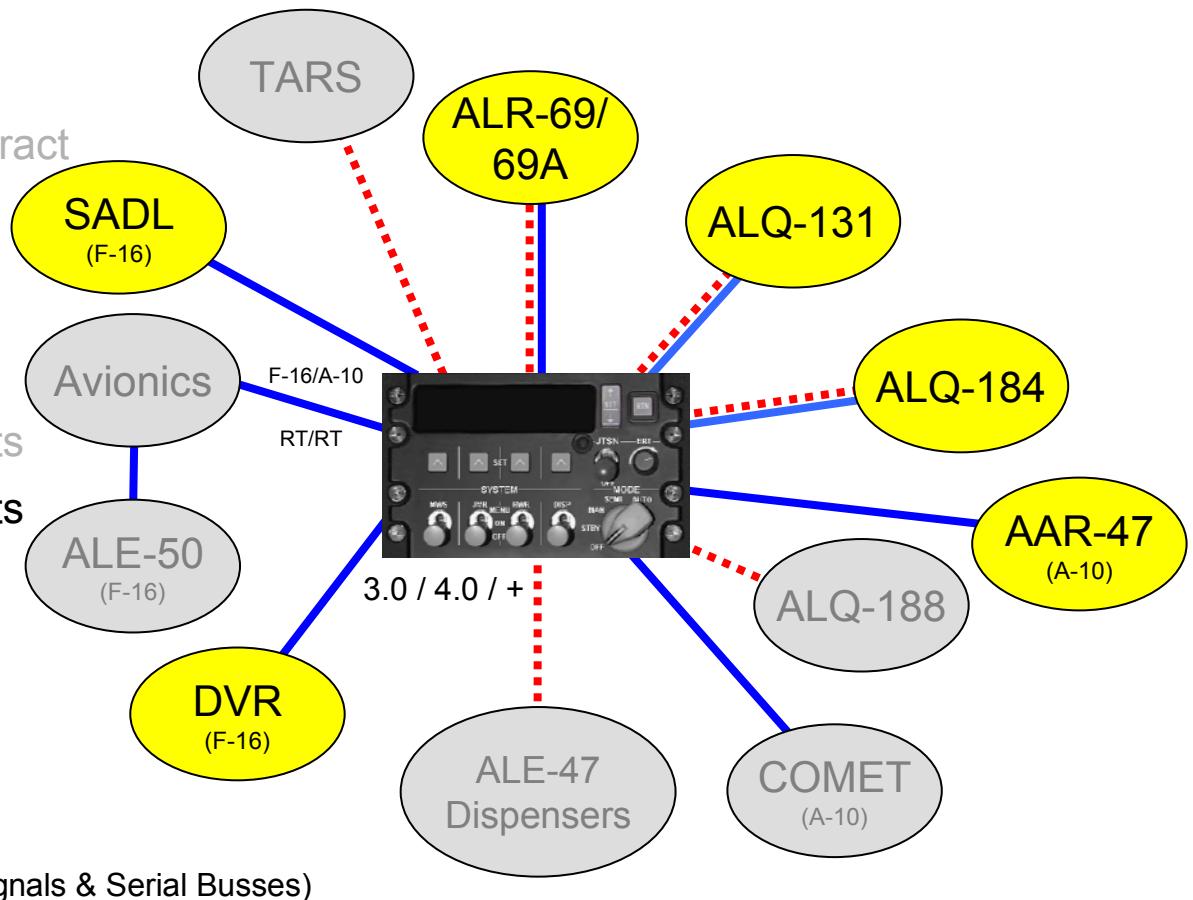


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ALQ-213 – 2006 +



- 1992-1995, ALQ-213 Foreign Comparative Test (FCT) by AATC
- December 1996, Robins Contract Award to Terma Electroniks, Denmark
- Initial CMSP SW Fielding
- Aircraft Core Integration
- 1999 User's Conference Inputs
- 2002 User's Conference Inputs
- Future Requirements
- ALQ-213 Processor Upgrade (APU)





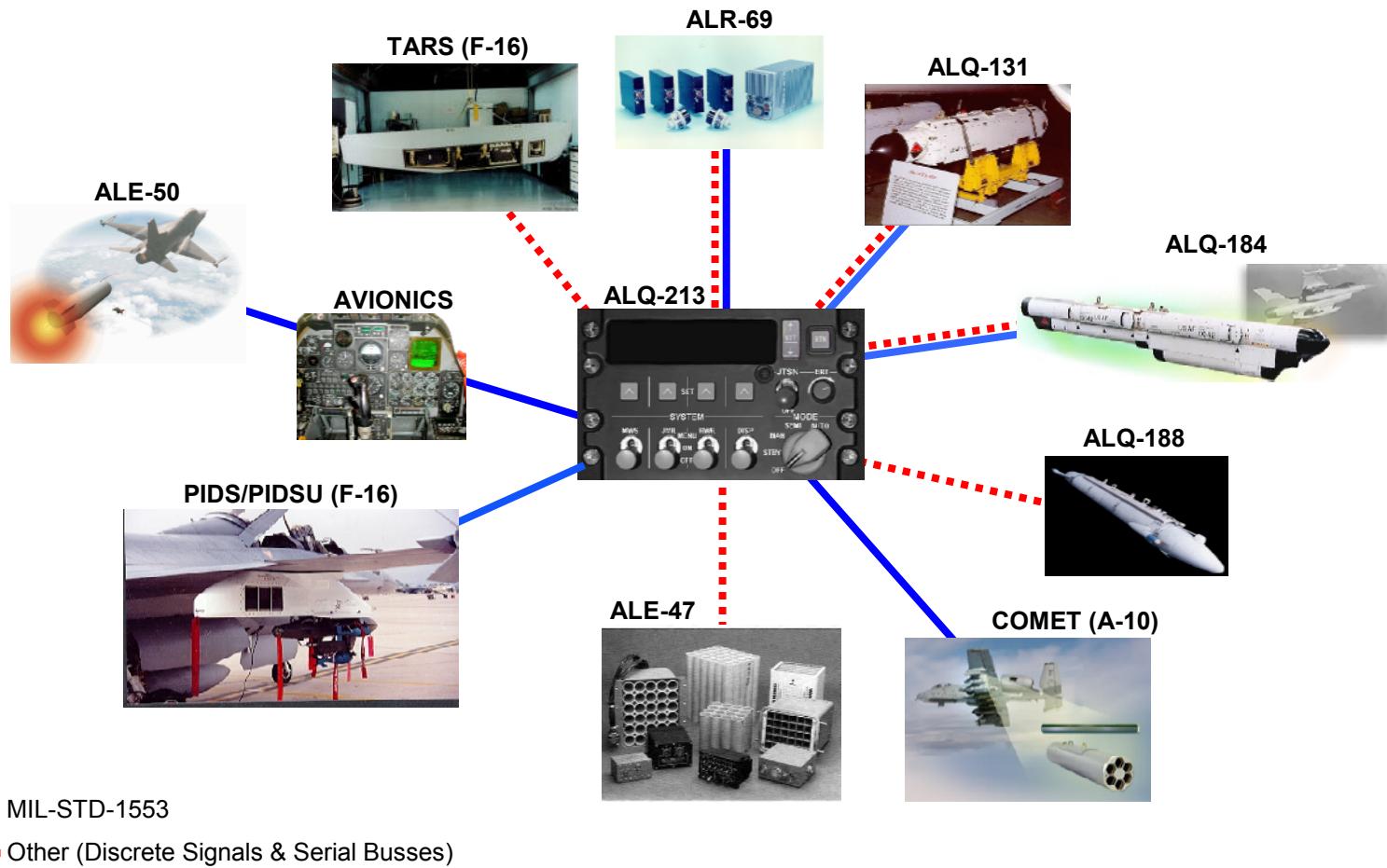
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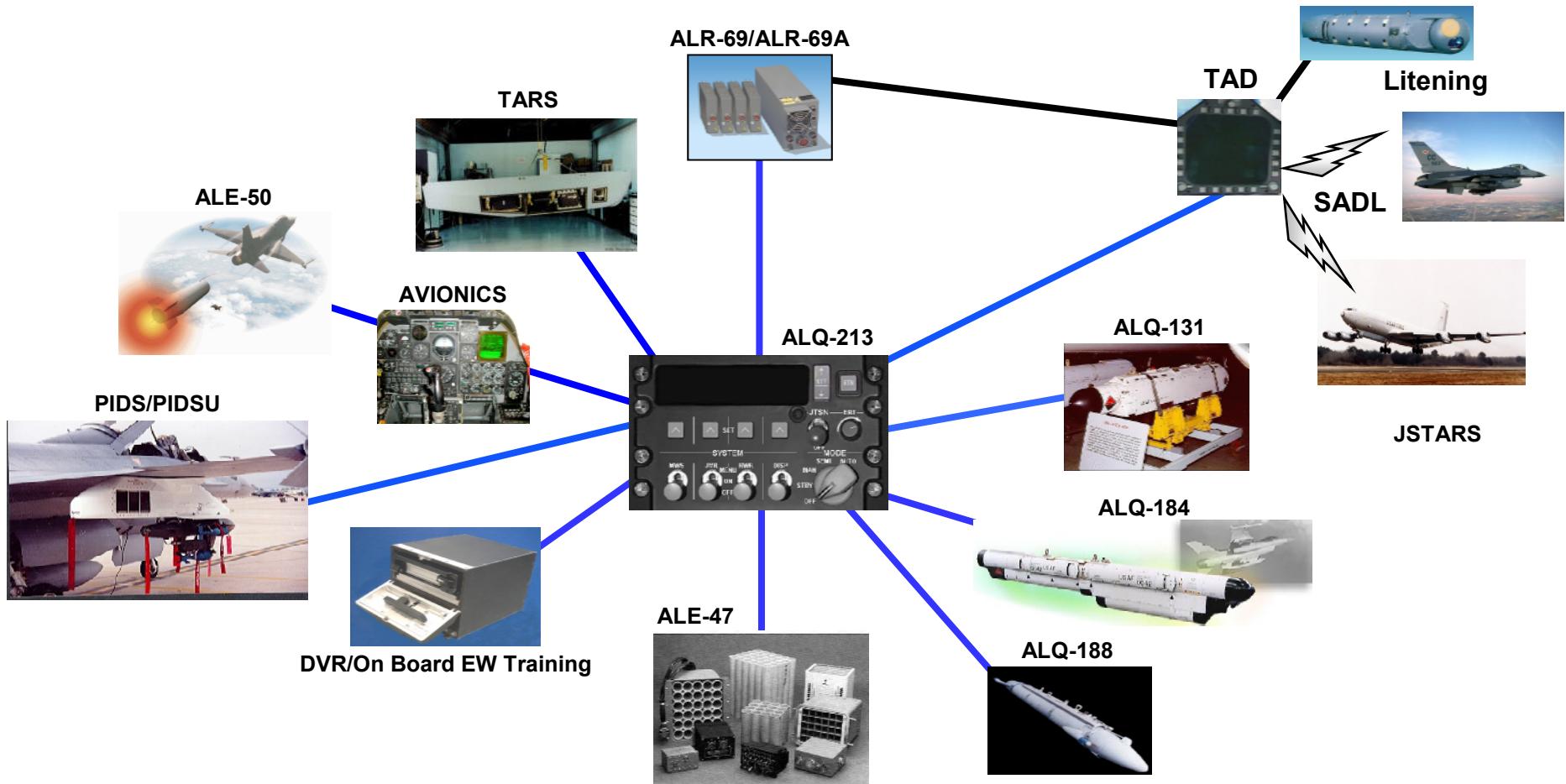
EW Integration & Capabilities Today (F-16C+ & A-10A)





EW Integration & Capabilities

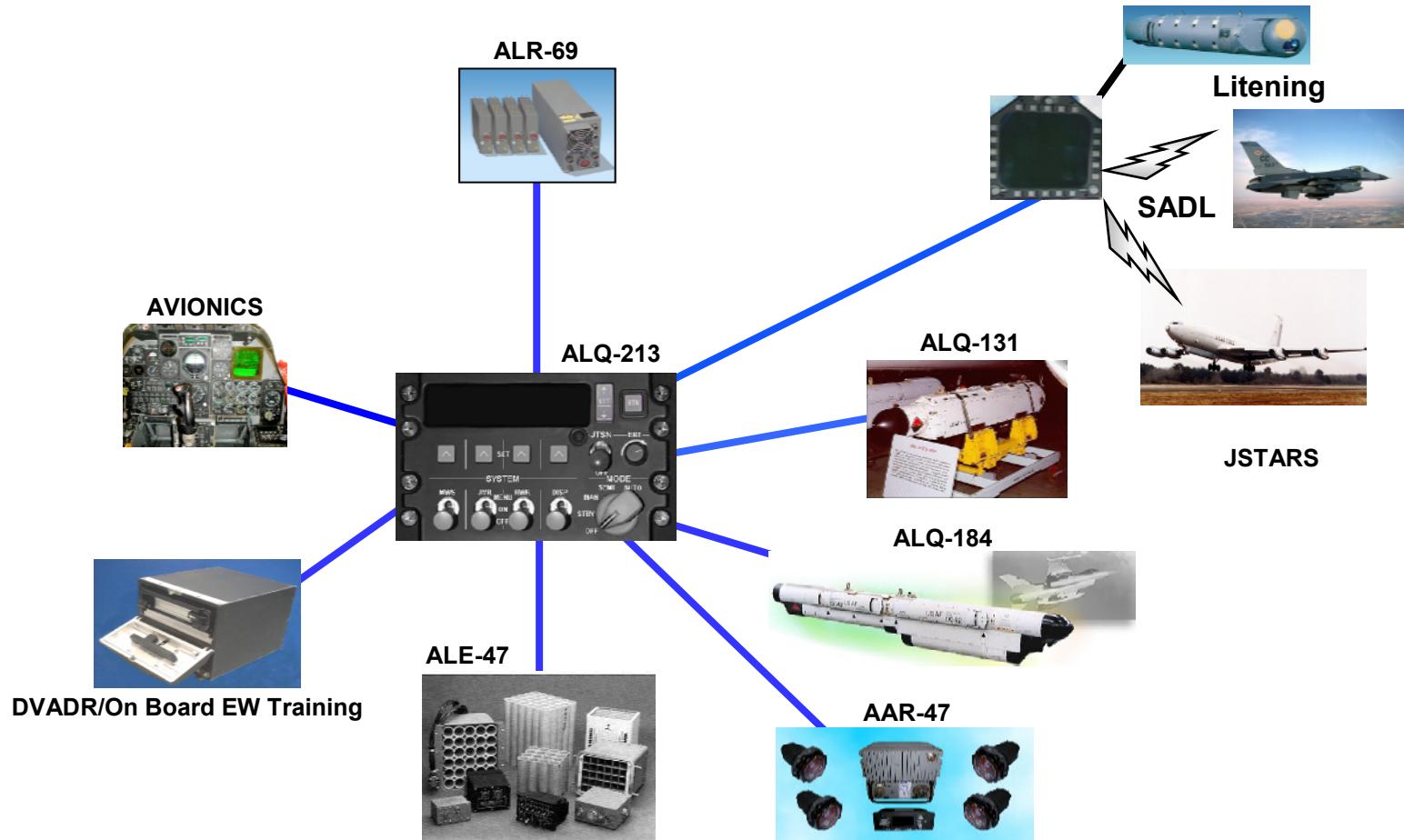
Future Vision (F-16C+)





EW Integration & Capabilities

Future Vision (A-10)





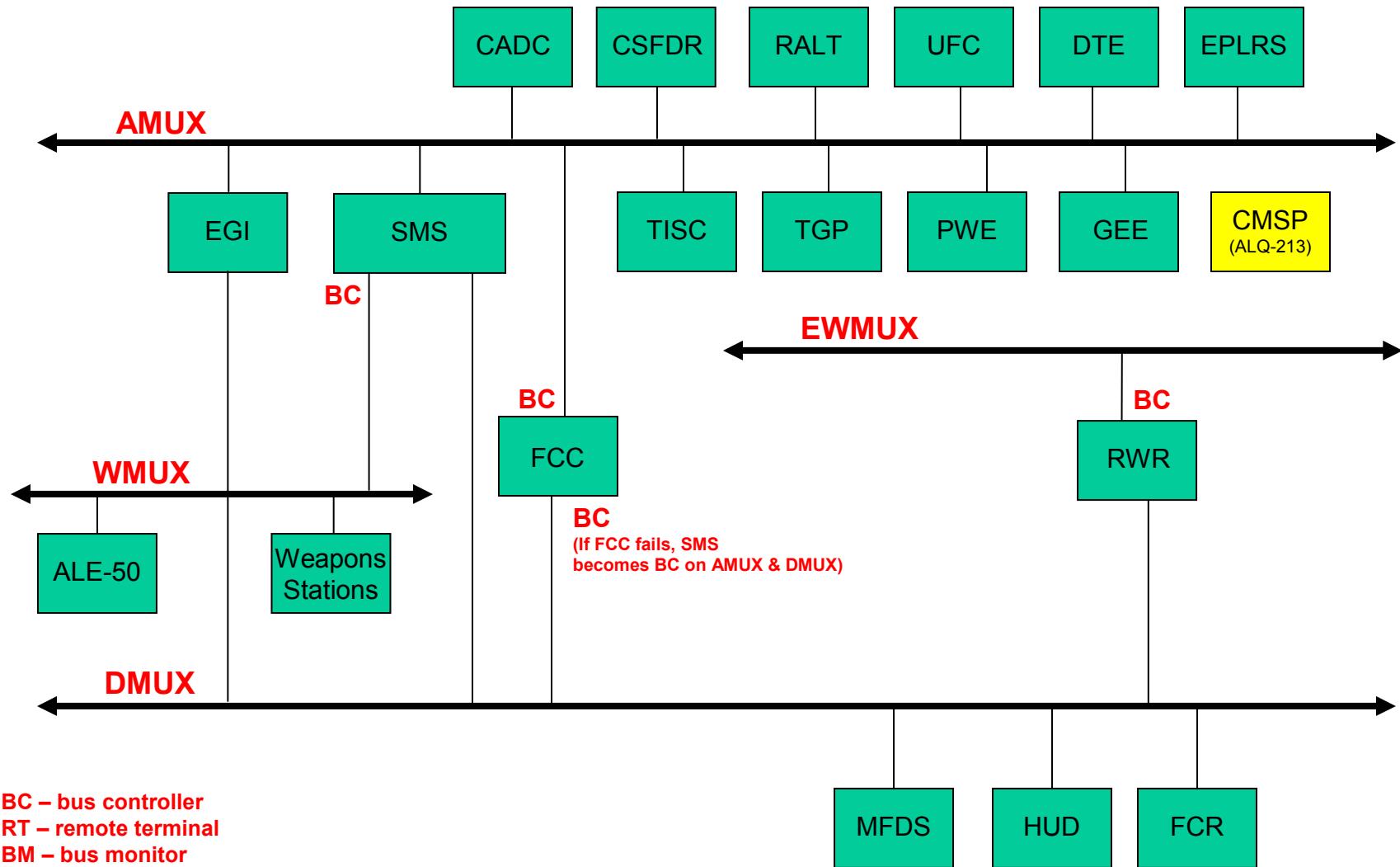
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F-16 Block 30 1553 Bus Architecture 1998



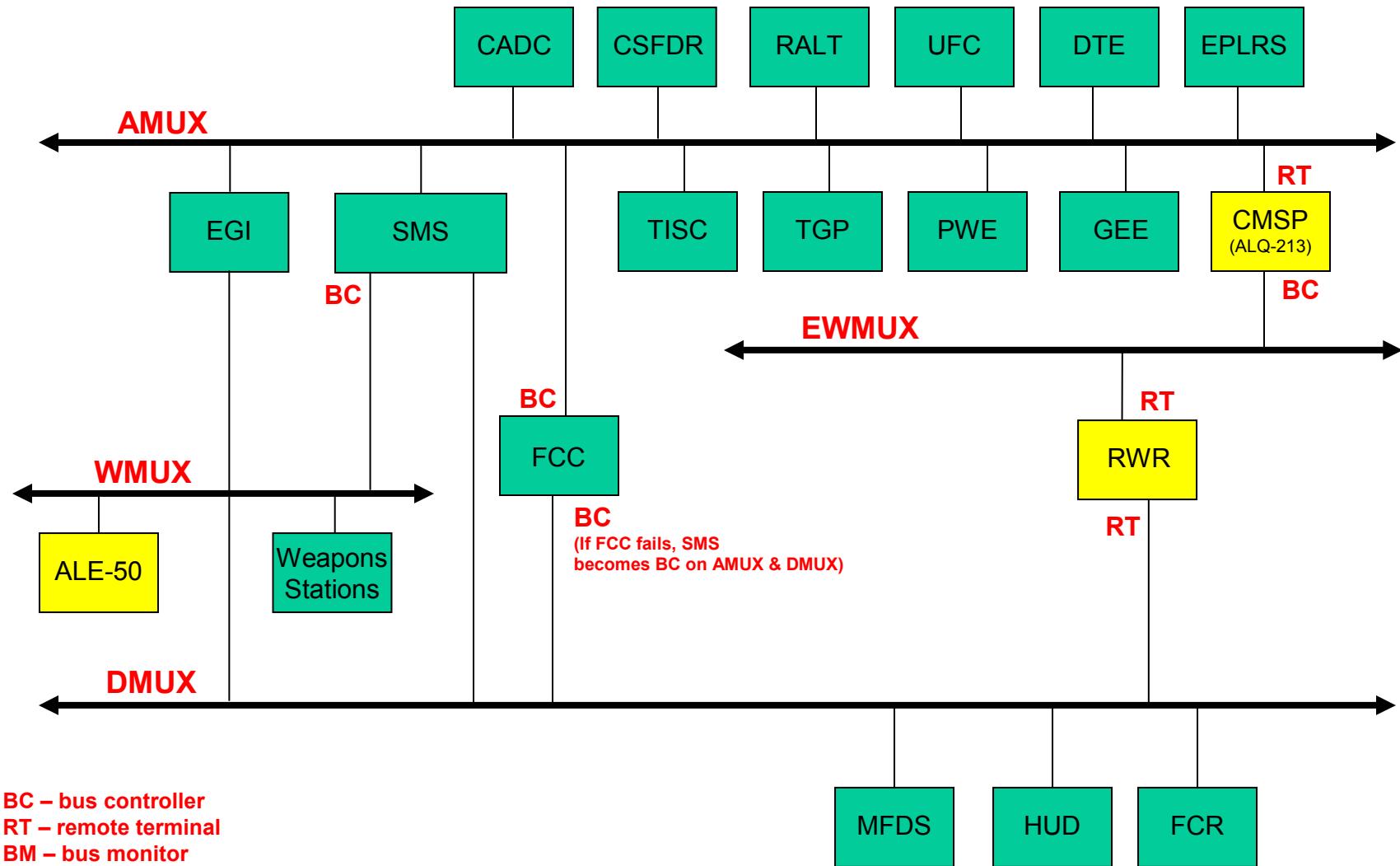
BC – bus controller
RT – remote terminal
BM – bus monitor



F-16 Block 30 1553 Bus Architecture 2001

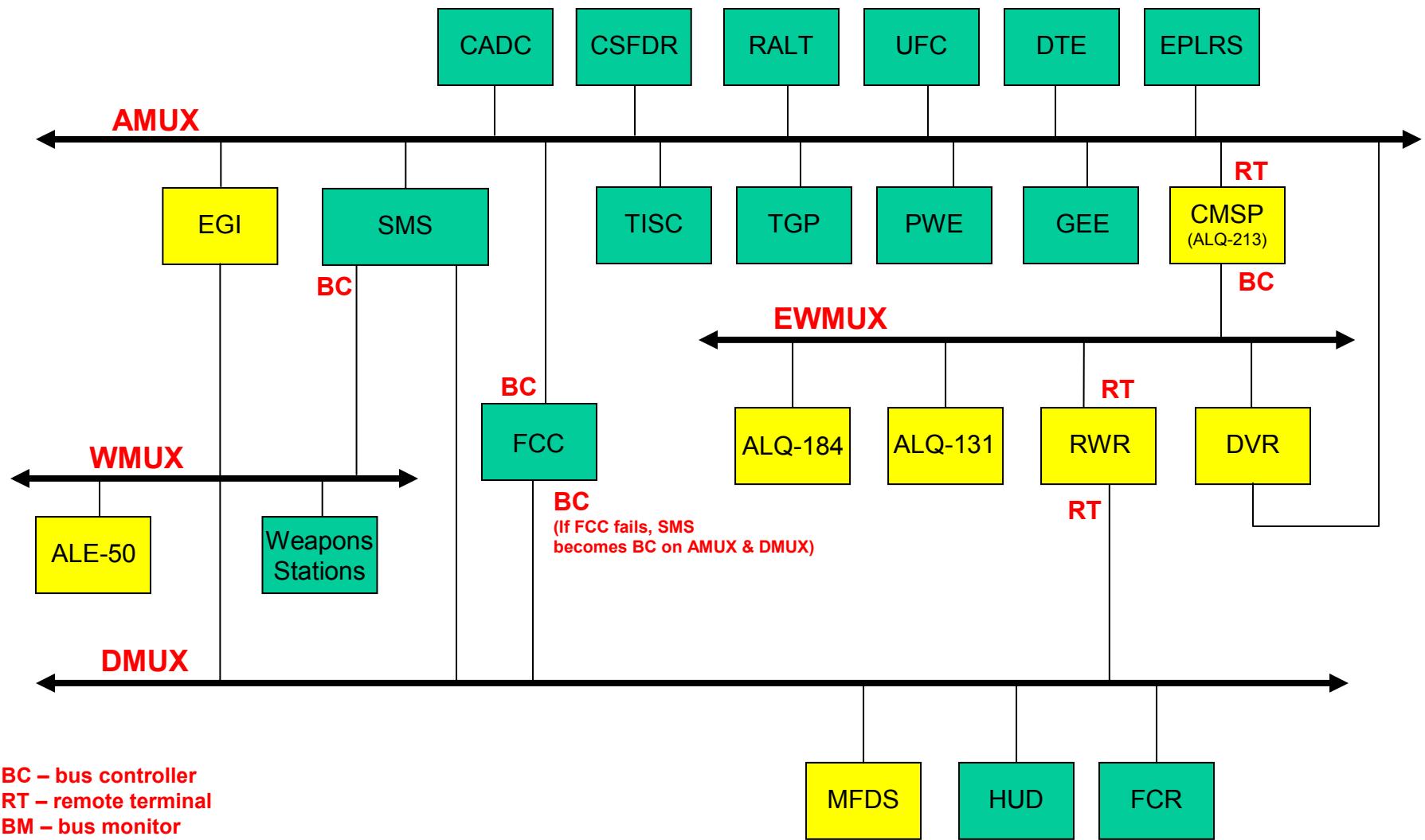


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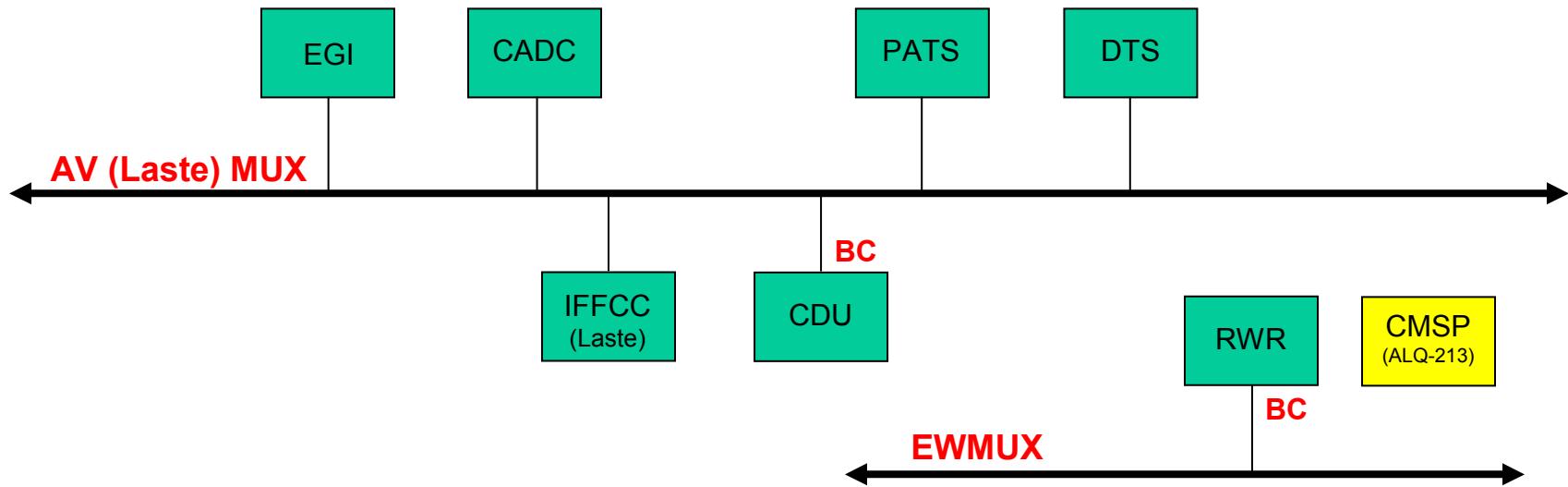


F-16 Block 30 1553 Bus Architecture 2006 +





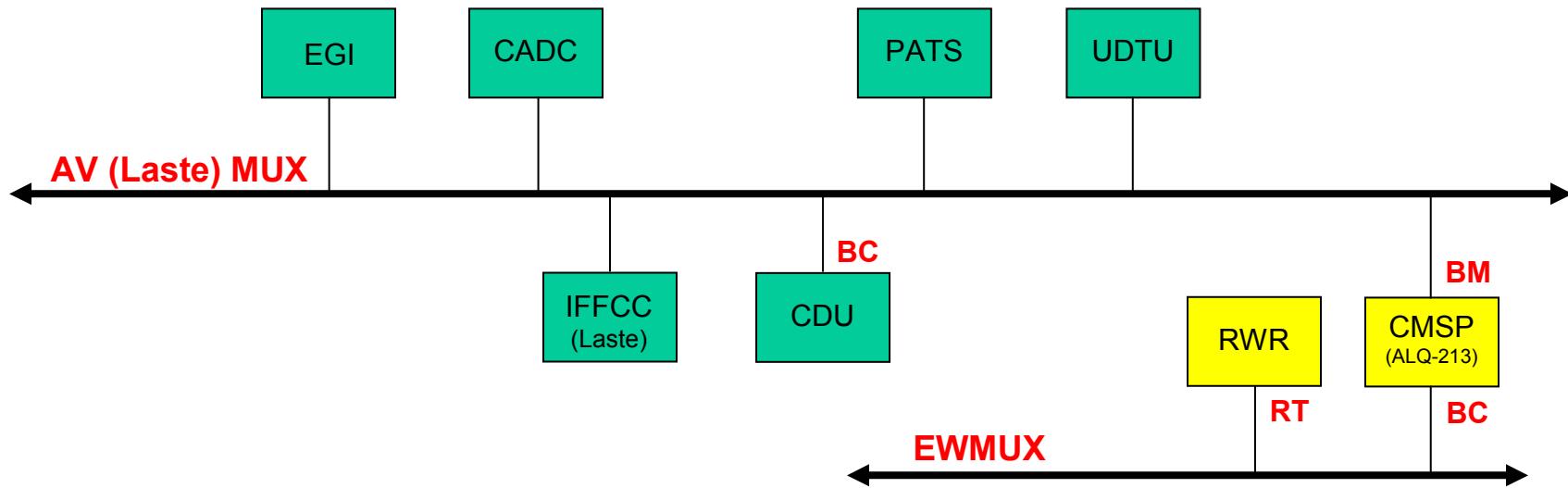
A-10A 1553 Bus Architecture 1998



BC – bus controller
RT – remote terminal
BM – bus monitor



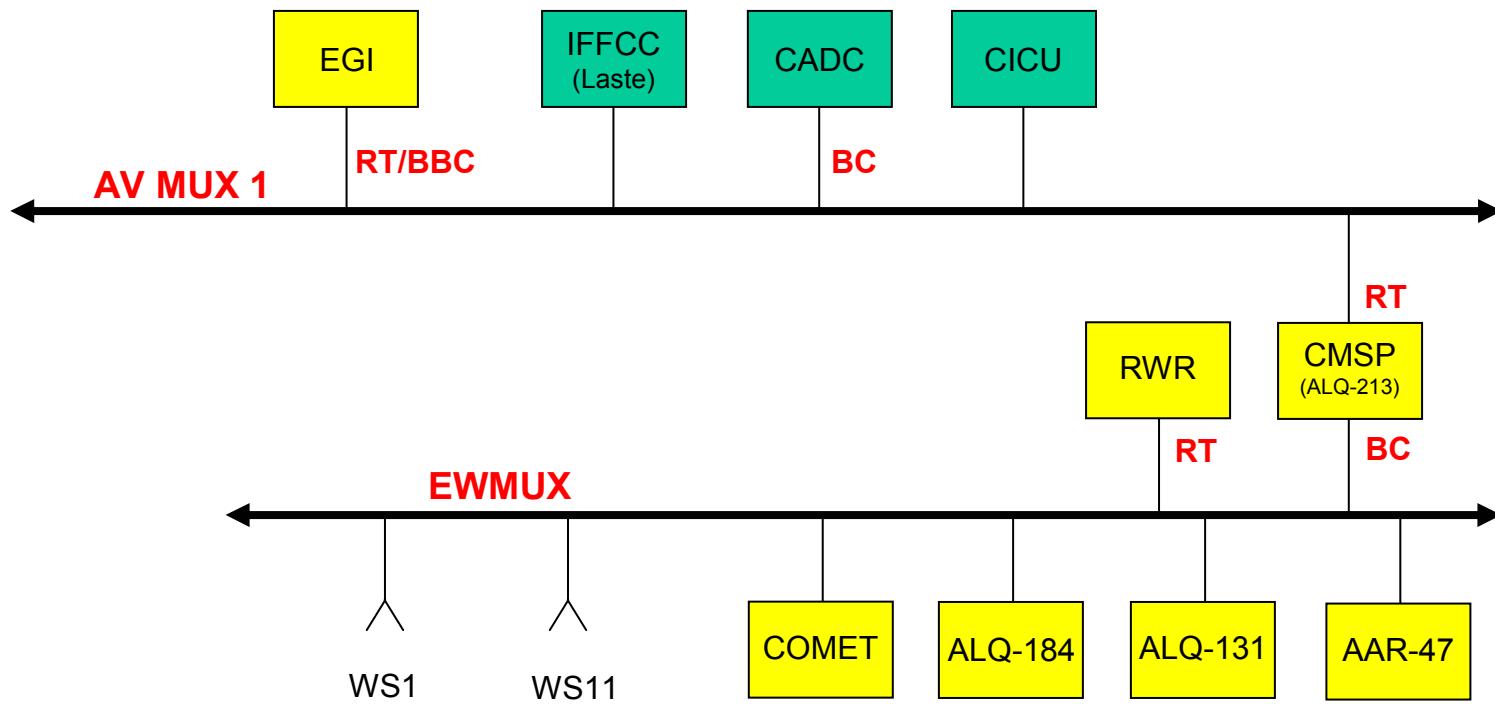
A-10A 1553 Bus Architecture 2001



BC – bus controller
RT – remote terminal
BM – bus monitor



A-10C (PE) 1553 Bus Architecture 2006+



BC – bus controller
RT – remote terminal
BM – bus monitor



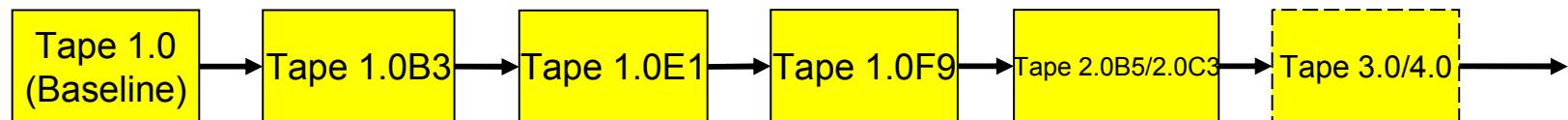
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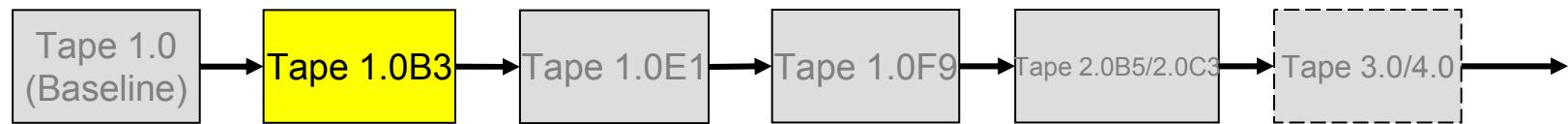
ALQ-213(V) SW Roadmap



- Only Operational or Fielded Loads Listed
- Multiple Interim and Test Tapes Not Included



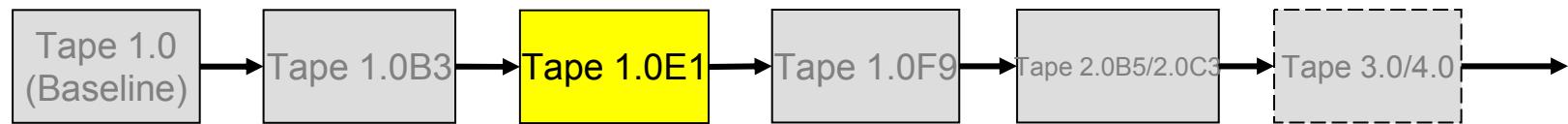
ALQ-213 SW Version 1.0B3



- Past Operational F-16 and A-10 Load
- ALR-69 (BC 13+) is EWMUX Bus Controller
- Original PVI (From Tape 1.0)
- Oldest and Least Capable Software



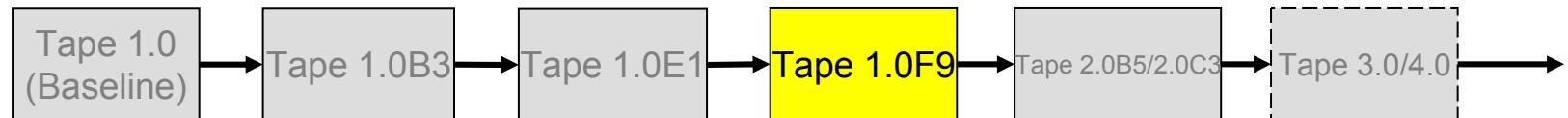
ALQ-213 SW Version 1.0E1



- Past Operational F-16 Load (SCU 4.0)
- Original PVI (From Tape 1.0)
- ALQ-184(V)9 Pod Capable



ALQ-213 SW Version 1.0F9



- **Current Operational F-16 and A-10 Load**
 - **F-16: SCU4.2 / SCU5E1 Compatible**
 - **A-10: Suite 2 Compatible**
- **ALQ-213 is RT 13 on F-16 AMUX**
- **Updated PVI – Status Page**
- **ALE-50 Capability (16S350 Pylon) and V-9 Pod**
- **No Instrumentation Messages Supported**
- **GTF Threats on the TAD Supported**
- **Jammer Pod Nuisance Fault Reduction**



ALQ-213 SW Version 1.0F9

Benefits



■ Threats on the F-16 TAD

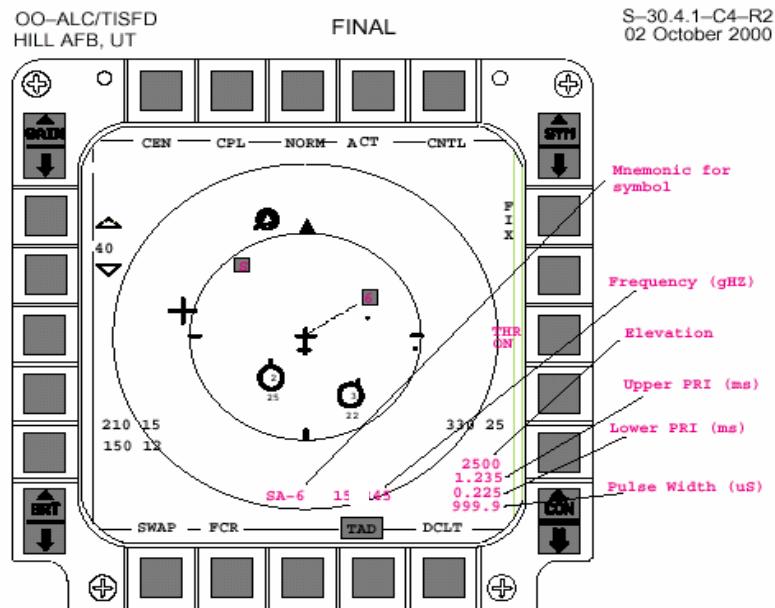
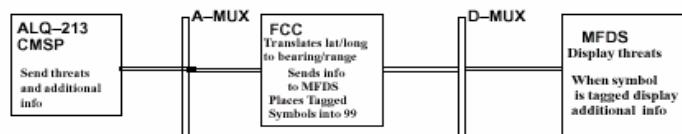


Figure 2. TAD Page with Tagged Threat Symbol

2.2. FUNCTIONAL PARTITIONING





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ALQ-213 SW Version 2.0B/2.0C



- Next Operational Load (2.0B5: F-16, 2.0C3: A-10)
- ALQ-213 Can Monitor A-10 AMUX
- Updated PVI – 1999 Users Conference OCR's Implemented
- Improved Communication with Jammer Pods
- ALQ-188 Support
- ALE-47 Sequencer (SWV 3047) Support
- Instrumentation Messages Supported
- Implementation of Threat Response Processor (TRP)
- 32 Chaff / Flare Routines
- 32 Jammer Routines



ALQ-213 SW Version 2.0B/2.0C

Benefits



■ Jammer Interference Reduction



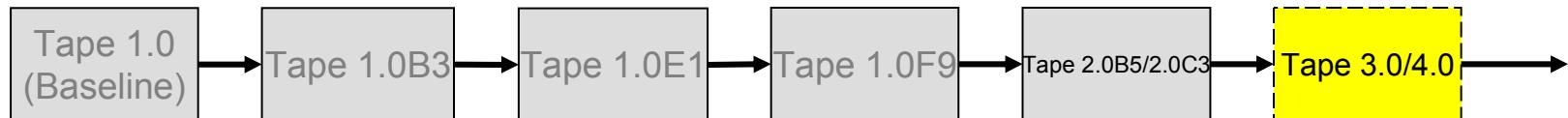
BEFORE INTEGRATION



AFTER INTEGRATION



ALQ-213 SW Version 3.0/4.0



- **MIL-STD-1553 Integration with Jammers**
 - Threat Correlation
 - Data Fusion
 - Jammer Interoperability
- Rangeless EC Training
- TRP Upgrades – Enhance Semi and Auto Modes
- Support for AAR-47 (A-10)
- Support for ALR-69A (F-16)
- Support for DVR (F-16)
- On-Board / Off-Board Threat Correlation

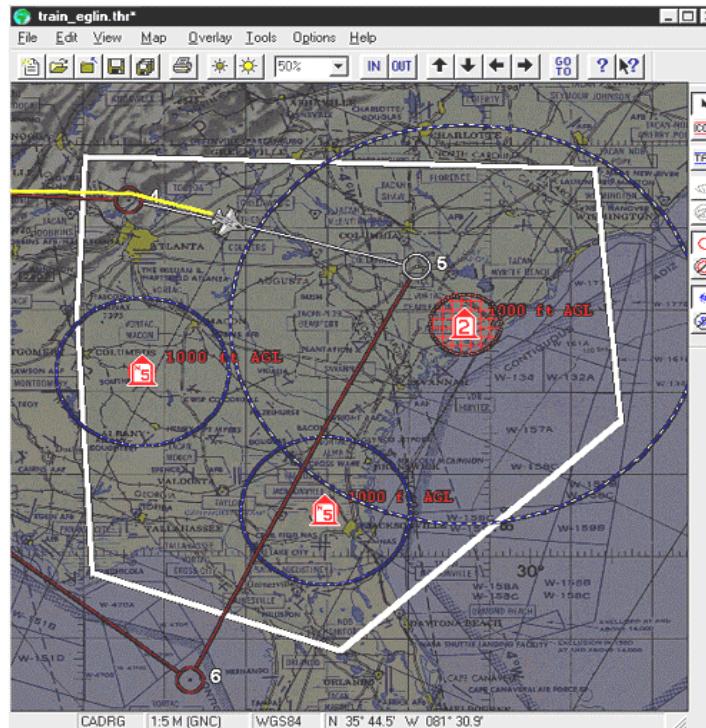


ALQ-213 SW Version 3.0/4.0

Benefits



- Support for DVR (F-16)
- Rangeless EC Training (VECTS)



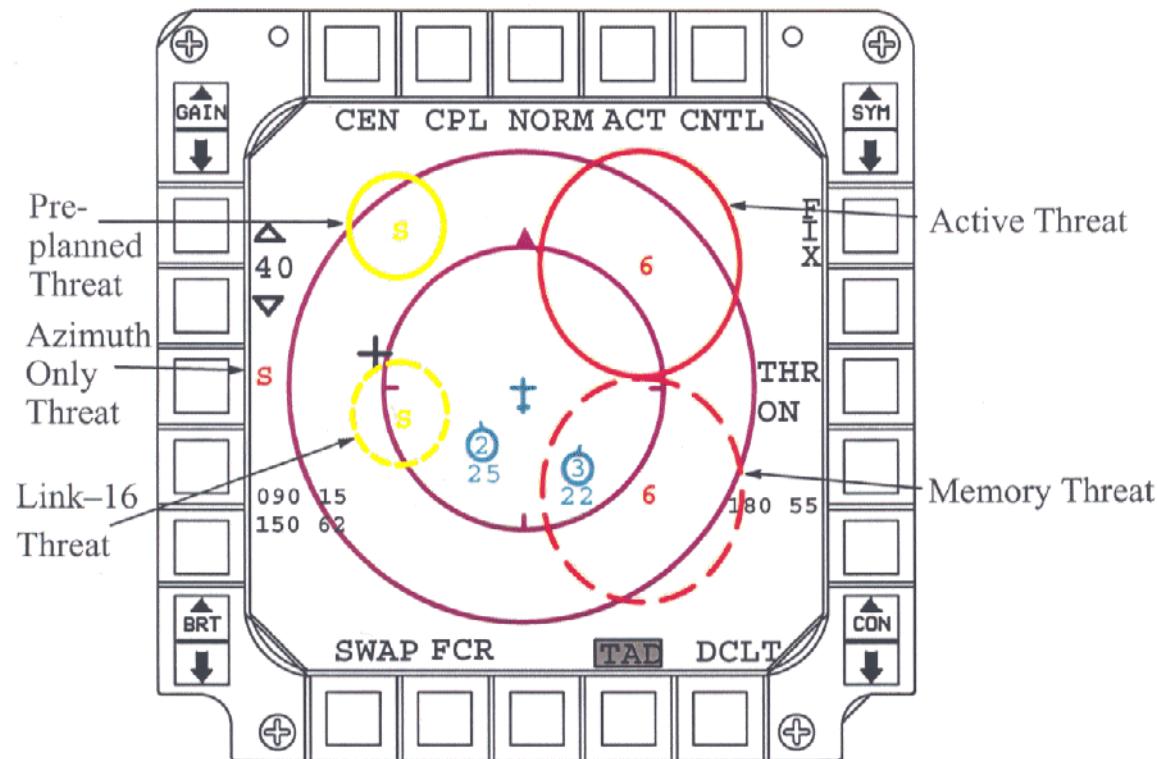


ALQ-213 SW Version 3.0/4.0

Benefits



■ Threats on the TAD (Color MFDS)





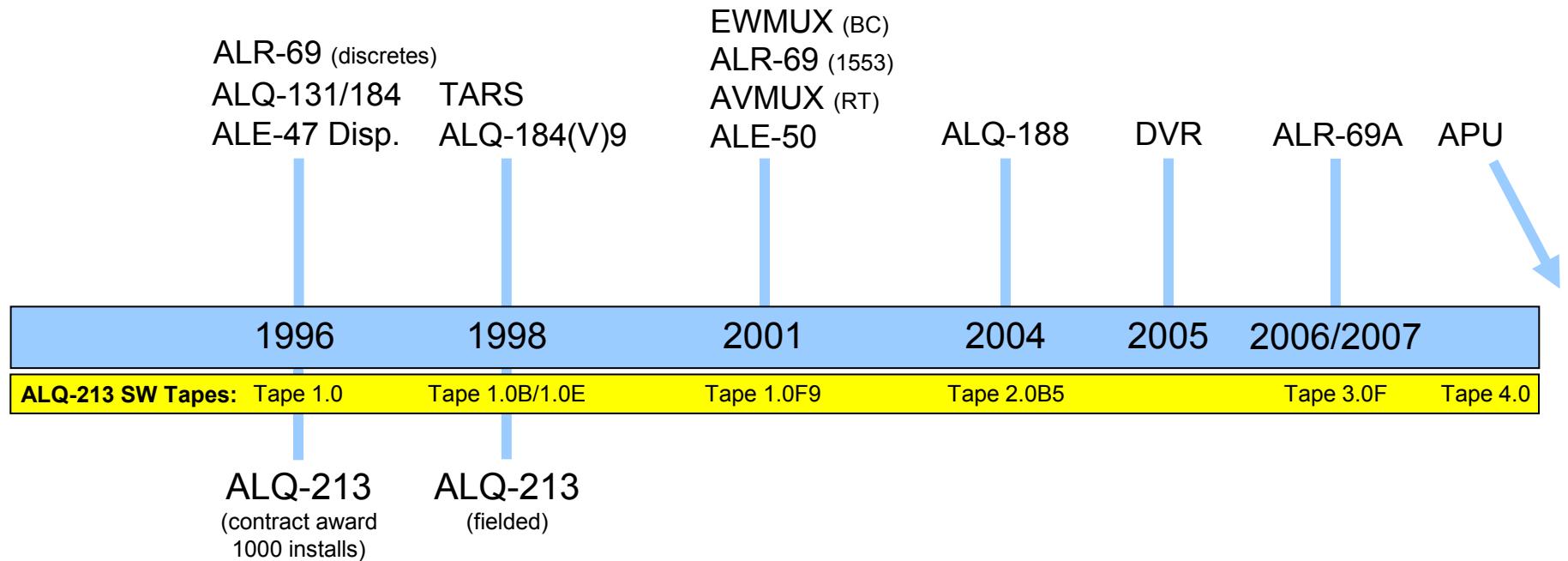
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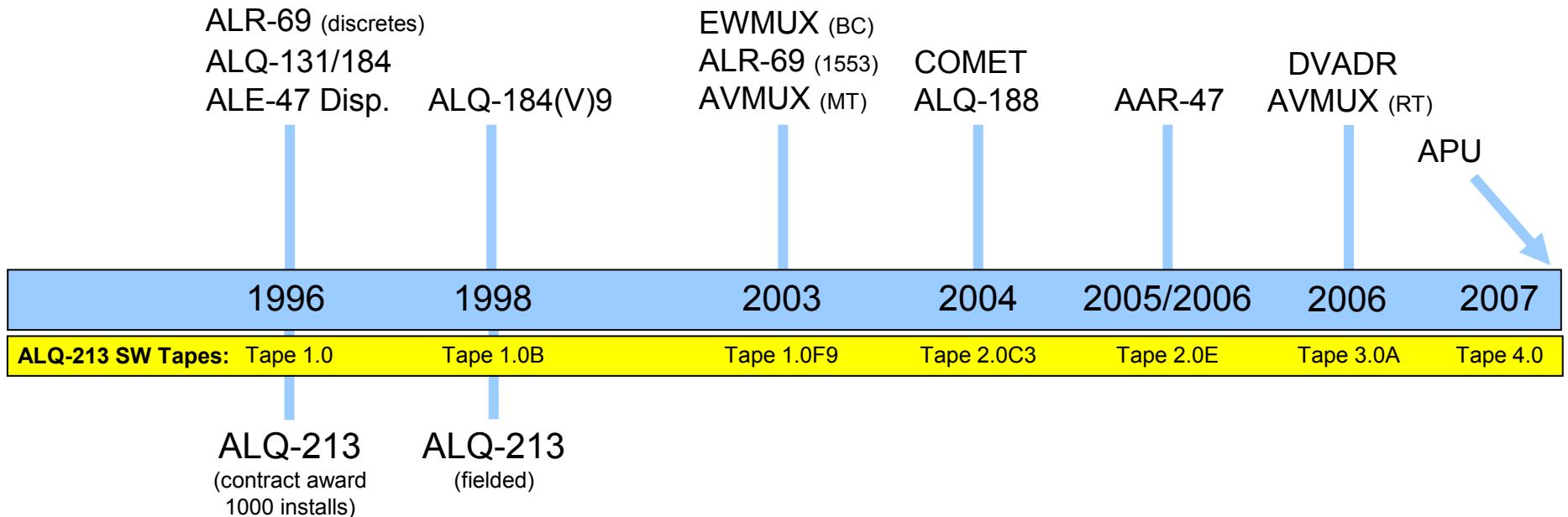


F-16C+ Integration Timeline





A-10A/C Integration Timeline





CONCLUSION



- **ALQ-213 Significantly Enhances F-16 and A-10 EC Capabilities Through Suite Integration**
- **ALQ-213 Hardware and Software will be Improved with APU and Continuing Software Updates to Meet the Operational Requirements**



QUESTIONS??

